

Resistance thermometer MiniTherm for food/pharmaceutical/biotechnology, fast response, Type Series GA270. HY





- Resistance thermometer for direct temperature measurement on tanks and pipes
- Compact design
- High measurement accuracy
- Output signal:
 - · Pt 100, 3-wire technology
 - · 4...20 mA, 2-wire technology
- Process connections for food/pharmaceutical/ biotechnology
- Hygienic design
- Fast response
- Circular connector M12 or field housing

Options

- Explosion protection
- Classification per SIL 2
- Output signal 4...20 mA via programmable transmitter
- Pt 100, 4-wire technology
- Thermowell with reduced tip Ø 4 mm
- Electropolishing

Application area

- · Food industry
- · Pharmaceuticals
- · Biotechnology

Applications

The resistance thermometer MiniTherm is suited for temperature measuring in tanks and pipes especially in hygienic applications. The change in resistance, dependent on the measurement temperature, can be detected and converted by a transmitter. Because of its compact design MiniTherm is suitable for use in a great number of technological processes.

Technical Data

Mechanical design

The Pt 100 is integrated directly into a thermowell. Various types of process connections are available.

Electrical connection

circular connector with screw connection M12 Further electrical connections upon request. Degree of protection: IP 67 per DIN EN 60529

Temperature detecting element

- thermowell Ø 6 mm option: reduced tip Ø 4 mm, length see order code.
 Upon request a calculation for thermowells can be made (for static or dynamic application) with certificate.
- flush mounted with PEEK insert for temperature decoupling (for G 1/2 B)

Measuring resistor

1 x Pt 100, tolerances per class A per DIN EN 60751

Output signal

- Pt 100, 3- or 4-wire technology (internal connected, see connection diagram)
- · 4...20 mA , 2-wire technology, programmable, option

- auxiliary power 8.5...36 V DC
- max. load (U-8.5 V)/0.023 A
- overrange 3.6...23 mA, infinitily adjustable
- error signal (following sensor breakage) 3.6...23 mA, infinitily adjustable
- · damping time 0...30 s
- accuracy at 23 °C < 0.1 % of span
- temperature effect < 0.13 %/10 °C.

Further technical data see type series PA2430, data sheet T4-082-1.

Temperature ranges

ambient temperature -40...+ 85 °C process temperature -50...+200 °C allowed storage temperature -40...+100 °C

Process connections

designs see order code. Gasket is not included! Further process connections upon request.

Operating pressure

max. 16 bar exception: Varivent D=68 Code A1512 max. 10 bar

Materials

wetted parts stainless steel mat.-no. 1.4404 (316L)

Functional safety

per EN 61508, classification per SIL 2; without transmitter, only

Hygienic design

surface quality surface roughness Ra \leq 0.8 μ m electropolished upon request

Response time

per DIN EN 60751, test procedure with flowing water (without transmitter)

- · thermowell 6 mm: T 90 = 5.5 s
- thermowell with reduced tip Ø 4 mm:

T 90 = 4.5 s

Ex-approval

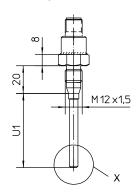
TÜV 08 ATEX 554093 X 1 II 1G Ex ia IIC T6/T5/T4 1 II 2G Ex ib IIC T6/T5/T4 1 II 1D Ex iaD 20 T89°C 1 II 2D Ex ibD 21 T129°C 1 2 30 V 2 2 200 mW

 $\mathbf{C_{i}}$ and $\mathbf{L_{i}}$ negligible small (not available with transmitter)

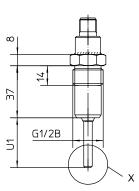
Dimensions

design with transmitter circular connector M12x1 4 pin one of the circular connector M12x1 4 pin one of the

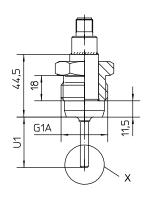
Process connection diagramed with circular connector M12x1



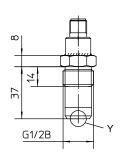
M12x1,5 dead-zone free (conical taper of metal)



G1/2B dead-zone free (conical taper of metal)



G1A dead-zone free (conical taper of metal)



G1/2B dead-zone free (conical taper) design flush mounted

Pt100 temperature

stainless steel

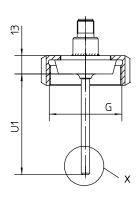
sensor

temperature

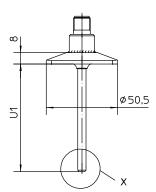
by plastic

design flush mounted Y

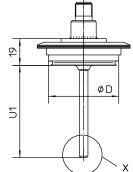
decouplement



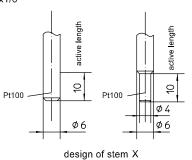
tapered coupling with groove union nut DIN 11851 DN25 G=Rd.52x1/6 DN32 G=Rd.58x1/6 DN40 G=Rd.65x1/6



clamp connection Tri-Clamp 1"/1½" ISO 2852 DN25/38 DIN 32676 DN25/40

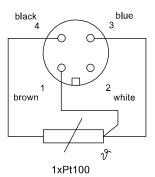


Varivent connection
D=31 for Varivent-case DN10 and DN15
D=50 for Varivent-case DN25 and 1"
D=68 for Varivent-case
DN 40-125 und 1 1/2"...6"

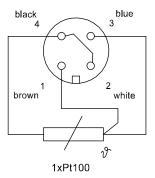


Connection diagram

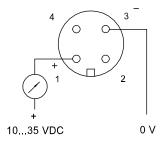
pin connection transducer 3-wire technology



pin connection transducer 4-wire technology



pin connection transmitter



2-wire technology 4...20 mA

Order Details - please give additional specifications for models not listed -

Resistance th	e thermometer MiniTherm for food/pharmaceutical/biotechnology			1270 . HY								
Ex-design	· without			0								
	· explosion protecti	on, type of ex-protection s. below		1		_						
process connection	threaded connection	· G 1/2 B conical, metal-to-metal joint ¹			A1011	4						
		· G 1 A, conical, metal-to-metal joint ¹			A1015	-						
		· M12x1.5, metal-to-metal joint			A1031							
	coupling nut DIN 11851	· DN 25			A1213	4						
		· DN 32			A1214							
		· DN 40			A1215							
	Clamp DIN 32676	· DN 25/40, Ø 50.5 mm			A1413							
	Clamp ISO 2852	· DN 25/38 (1"/ 1 1/2"), Ø 50.5 mm			A1423							
	Clarif 150 2002	· DN 40/51, Ø 64 mm			A1424							
	TriClamp	TriClamp · 1" / 1 1/2", Ø 50.5 mm			A1433	1						
		· D=31 for Varivent housing DN 10 and DN 15			A1510	1						
	Varivent connection	· D=50 for Varivent housing DN 25 and DN 1"			A1511	1						
		· D=68 for Varivent housing DN 40DN 125 and 1 1/2".	6"		A1512	1						
temperature	· flush mounted 2					C1000]					
detecting	· Ø 6 mm					C1						
element	· Ø 6 mm, reduced	design to Ø 4 mm				C4						
insertion length U1 (mm)	15					015						
	25					025						
	30					030						
	35					035						
	50					050						
	100					100						
	150					150						
	200					200						
	as in writing					999						
	wetted parts stainless steel matno. 1.4404 (316L), standard					333	G11	1				
measuring	· · · · · · · · · · · · · · · · · · ·	re technology, fast response, standard					-	N2	1			
insert		re technology (3-wire technology internal connected)					+	N3	1			
electrical connection: circular connector M12x1 (4 pin), IP 67, standard							+	143	T150			
electrical com	ection. Circular com	Tector W12X1 (4 pin), IF 07, standard			_		+	_	1 130			
dditional for	stures (to be indice	ited in case of need, only)										
idditional lea	· € II 1G Ex ia IIC	,					-	-	+	S71	1	
							-		+	S71		
type of ex-	⋅ W II 2G Ex ib IIC						-		+	_		
protection	· 🐼 II 1D Ex iaD 2				_		+	-	+	S73	-	
	· 🖾 II 2D Ex ibD 2						+		+	S74		
unctional safety per EN 61508, classification per SIL 2							_		+	_	W2604	_
incl. t	transmitter	output signal 420 mA via programmable transmitter ³					\perp	_	\perp		\perp	Z 5
				-		+	+	\downarrow	+	+	+	
order code (example):			G/	A2700HY	A1011	C1050	G11		T47			

suitable weld-in sockets see product group T6
 for G 1/2 B conical, metal-to-metal joint, only

³ not with ex-protection, see data sheet T4-082-1